

Claims

What is claimed is:

1. A method of delivery source of oxygen for oxygenating blood and tissue, the source comprising tetrameric oxygen in an aqueous solution.
2. The source of claim 1 wherein the oxygen is supported by a substrate.
3. The method of applying the solution of claim 1 & 2 when it is contained in a gel, paste, cream, lotion vehicles; emulsion, ointment and optionally additional solvent or stabilizer comprising the pharmaceutical composition of claim 1.
4. The method of applying the solution of claim 1 & 2 when it is an ophthalmic preparation or other aqueous solution delivered in the form of a (drop).
5. The method of claims 1 & 2 wherein the delivery system is intradermal injection.
6. The method of claims 1 & 2 wherein the delivery system is transdermal patch.
7. The method of claims 1 & 2 wherein the delivery system is a mechanical device.

8. The method of claim 1 & 2 wherein the substrate comprises a membrane or thin film.
9. The method of claim 1 & 2 wherein the substrate comprises a hollow tube.
10. The method of claims 1, 2 & 3 in an independent delivery device with or without pH monitoring.
11. The methods of claims 1, 2 & 3 used in conjunction with transcutaneous oxygen measuring device for clinical or marketing purposes.
12. The method of claims 1, 2 & 3 used in conjunction with medical conditions using transcutaneous oxygen measurement for clinical assessment or monitoring.
13. The method of claim 6 wherein transdermal delivery comprises a substance selected from the group consisting of gels, ointments and liquid vehicles.
14. The method of claims 1-14 used to treat respiratory conditions or as an adjunct treatment in anesthesia.
15. The method of claims 1-14 used as target therapy.
16. The method of claims 1-14 used as adjunct to chemotherapy and radiation therapy.
17. The method of claims 1-14 for the treatment of vascular and circulatory insufficiencies and peripheral vascular disease.
18. The method of claim 1, 2 & 3 used as an anti-aging agent.
19. The method of claim 1, 2 & 3 used as a free-radical scavenger or neutralizer.

20. The method of claims 1-14 for prevention of cancer, prevention and treatment of cancer metastases, treatment of cancer, increasing chemotherapy sensitivity and radiosensitivity of tumors, relieving tumor resistance by creating a localized hyperbaric condition.
21. The method of claims 1-14 wherein the oxygen containing solution is used to facilitate drug mechanisms of existing drugs.
22. The method of claims 1, 2 & 3 used as an agent for prevention and reduction of skin wrinkles, comedogenicity, providing moisture and improving tone, tightening pores.
23. The method of claims 1, 2 & 3 for cleansing skin in use as a sterile solution (i.e. surgical prep).
24. The method of claim 1 for cancer prevention and treatment, cancer safety research, cancer research, protocol development, cancer research.
25. The method of claim 1 for treatment of anemia and hemoglobinopathies & blood dyscrasias.
26. The method of claim 1 for prevention and treatment of age related macular degeneration.
27. The method of claims 1, 3 & 4 for prevention and treatment of corneal hypoxia from contact lens wear.
28. The method of claims 1, 3 & 4 for prevention and treatment of ocular ischemia and prevention and treatment of retinopathies.
29. The method of claims 1, 2 & 3 for treatment of skin conditions and increasing transcutaneous levels of tissue oxygenation.
30. The method of claims 1-4 for prevention or treatment of photo reactivation of existing HIV infection, Herpes and prevention and reduction of increased viral load from UV reactivation and conditions related to HIV and AIDS and other immune deficiency conditions.
31. The method of claims 1, 2 & 3 for prevention of infection, treatment of infection and treatment of refractory infection.

32. The method of claims 1, 2 & 3 for treatment of peripheral neuropathies and ischemia induced pain.
33. The method of claims 1-4 for prevention of ocular damage associated with aging, free radicals and metabolite mediated cellular damage, prevention and treatment of cataracts.
34. The method of claims 1-4 for preservation of corneal health in corneal transplant and other organ transplants, and tissue transplants including skin grafts.
35. The method of claims 1,2,3 & 4 in a transdermal oxygen delivery system in healthy or compromised skin.
36. The method of claims 1, 2, 3 & 4 in combination as a transdermal delivery system for prolonged pain relief.
37. The method of claims 1, 2, 3 & 4 as treatment for patients requiring supplemental oxygen in respiratory conditions or in environments with compromised oxygen.
38. The method of claims 1, 2, 3 & 4 to prevent damage from decreased ozone and associated UV damage.
39. The method of claims 1, 2 3 & 4 to prevent and treat impairment of immune function related to UV exposure.
40. The method of claims 1, 2, 3 & 4 to help heal and prevent infection after surgical procedures including laser, plastic surgery, post Botox injection.
41. The method of claims 1, 2, 3 & 4 for transcutaneous oxygen delivery for treatment of surgical wounds, non-healing ulcers due to ischemia.
42. The method of claims 1, 2, 3 & 4 as a transdermal patch for treatment of cardiac induced ischemia and respiratory insufficiency.

43. The method of claims 1, 2, 3 & 4 with other ingredients as pain, muscle relief formula for prevention of lactic acid build-up and induced muscle cramping and other related conditions.
44. The method of claims 1, 2, 3 & 4 as oxygen therapy.
45. The method of claims 1, 2, 3 & 4 as a body wrap.
46. The method of claims 1, 2, 3 & 4 as a method of detoxification, immunotherapy and microcidal, microstatic.
47. The method of claims 1, 2, 3 & 4 as treatment of ischemic and vasculogenic neuropathies.
48. The method of claims 1, 2, 3 & 4 as treatment of ocular and systemic vasculopathies in diabetes and other related conditions.
49. The method of claims 1, 2, 3 & 4 as treatment for vasculogenic headaches including but not limited to migraines.
50. The method of claims 1, 2, 3, & 4 to increase tissue oxygenation in non-healing ulcers due to ischemia.
51. The method of claims 1, 2, 3 & 4 to increase viability of transplant organs cornea, liver kidneys, cardiac, pancreas and stem cells.
52. The method of claims 1, 2, 3 & 4 to facilitate fetal lung development and treat fetal hypoxia and related conditions.
53. The method of claims 1, 2, 3 & 4 to prevent and treat antioxidant and reactive oxygen species related damage.
54. The method of claims 1, 2, 3 & 4 to treat burns, wounds and other non-healing wounds.
55. The method of claims 1, 2, 3 & 4 to treat ischemia induced conditions.

56. The method of claims 1,2,3 & 4 to increase tissue oxygenation and tissue oxygen saturation.
57. The method of claims 1, 2 3 & 4 to facilitate wound healing in wounds, skin grafts and flaps.
58. The method of claims 1,2, 3 & 4 as gene therapy and as an adjunct to gene therapy.
59. The method of claims 1, 2, 3 & 4 as medical research.
60. The method of claims 1, 2, 3 & 4 to treat reperfusion induced arrhythmias, reperfusion of limbs, vasculogenic damage and trauma induced ischemia.
61. The method of claims 1, 2 3 & 4 to prevent and treat skin damage in cancer patients (i.e. delayed radiation injury).
62. The method of claims 1, 2 3 & 4 to prevent development of molecular damage and skin cancer.
63. The method of claims 1, 2, 3 & 4 used as immunotherapy, in infectious and inflammatory conditions.
64. The method of claims 1, 2, 3 & 4 for prevention and treatment of neurological deterioration in neurological conditions including but not limited to: Parkinson's disease, Alzheimer's and other neurodegenerative diseases.
65. The method of claims 1, 2, 3 & 4 for treating conditions treated by hyperbaric oxygen including but not limited to strokes, migraine headaches, refractory infection, wounds, anemia, air or gas embolism, carbon monoxide poisoning, myositis and myonecrosis, crush injury, compartment syndrome and acute traumatic ischemias, decompression sickness, wounds, abscess, necrotizing soft tissue infection, osteomyelitis, skin grafts and flaps, thermal burns, radiation injury.

- 66. The method of claims 1, 2, 3 & 4 used as or in conjunction with a vector for gene therapy or medical treatment.
- 67. The method of claims 1, 2, 3 & 4 for treating cancer and reducing hypoxic states induced by cancer and relieving tumor resistance by improving oxygen delivery to tissues.
- 68. The method of claims 1, 2, 3 & 4 for prevention and treatment of UV induced damage.
- 69. The method of claims 1 & 2 for culturing cells.
- 70. The method of claim 1 for prevention and treatment of mitochondrial damage from reactive oxygen species.
- 71. The method of claims 1, 2, 3 & 4 for prevention and treatment of angina and cardiac conditions.
- 72. The method of claims 1, 2, 3 & 4 for drug delivery through scalp.
- 73. The method of claims 1 & 2 for development of hair dye.
- 74. The method of claims 1-14 for neutralization or prevention of hydrogen peroxide and other free radicals and reactive oxygen species.
- 75. The method of claims 1, 2, 3 & 4 used in the treatment of conditions requiring oxygen including but not limited to current conditions.
- 76. The method of claims 1, 2, 3 & 4 for use in marketing products with the transcutaneous oxygen monitor.
- 77. The method of claims 1, 2, 3 & 4 as a transdermal patch for pain relief.
- 78. The method of claims 1, 2, 3 & 4 as chemotherapy adjunct or incorporated within existing drugs to improve pharmacokinetics for chemotherapy and radiation therapy moderator.

79. The method of claims 1, 2, 3 & 4 as adjunct or incorporated within drugs to improve pharmacokinetics for antibiotics or as adjunct to antibiotic treatment.
80. The method of claims 1, 2, 3 and 4 for study mechanisms of cancer as related to hypoxia and resistance, optimal treatment and tumor growth.
81. The method of claims 1, 2, 3 & 4 for use in anesthesia procedures.
82. The methods of claims 1-11 for use in gene therapy.
83. The methods of claims 1-11 for use with laser or treatment with ultrasound.
84. The method of claims 1, 2, 3 & 4 for use in a modification of the Medtronic Bravo™ pH monitoring system used to monitor pH and/or oxygen in cancer with or without concomitant delivery of oxygen or medication.
85. The method of claims 1, 2, 3 wherein the system being applied by means of a spray.
86. The method of claims 1-11 used in the treatment of fungal, bacterial, viral & inflammatory conditions.
87. The method of claims 1-11 when the hypoxic induction factor (HIF) pathway is a target.
88. The method of claims 1-11 when the target tissue is arteriosclerosis and atherosclerotic plaques.